

WHAT IS CLAIMED IS:

1. A composition comprising an antibody that binds to a fibronectin binding domain of a fibronectin binding protein and inhibits binding of said fibronectin binding protein to fibronectin.

2. The composition of claim 1, wherein said antibody binds to a peptide of said fibronectin binding domain that, when not an integral part of said fibronectin binding domain, does not specifically bind to fibronectin.

3. The composition of claim 1, wherein said antibody binds to a fibronectin binding domain of a microbial fibronectin binding protein.

4. The composition of claim 3, wherein said antibody binds to a fibronectin binding domain of a streptococcal or a staphylococcal fibronectin binding protein.

5. The composition of claim 4, wherein said antibody binds to a fibronectin binding domain of a streptococcal Sfb, FnBA or FnBB or staphylococcal FnBPA or FnBPB fibronectin binding protein.

6. The composition of claim 5, wherein said antibody binds to a fibronectin binding domain of a staphylococcal FnBPA fibronectin binding protein.

7. The composition of claim 6, wherein said antibody binds to a fibronectin binding domain of the *Staphylococcus aureus* FnBPA fibronectin binding protein.

8. The composition of claim 1, wherein said antibody is a monoclonal antibody.

9. The composition of claim 8, wherein said antibody binds to the same epitope as monoclonal antibody 9C3 (ATCC HB xxxxx) or 11A5 (ATCC HB yyyyy).

10. The composition of claim 9, wherein said antibody is monoclonal antibody 9C3 (ATCC HB xxxxx) or 11A5 (ATCC HB yyyyy).

11. The composition of claim 1, wherein said antibody is linked to a detectable label.

12. The composition of claim 11, wherein said antibody is linked to a radioactive label, a fluorogenic label, a nuclear magnetic spin resonance label, biotin, avidin or an enzyme that generates a colored product upon contact with a chromogenic substrate.

13. The composition of claim 12, wherein said antibody is linked to an alkaline phosphatase, hydrogen peroxidase or glucose oxidase enzyme.

14. The composition of claim 1, dispersed in a pharmaceutically acceptable excipient.

15. A composition comprising an isolated peptide of a fibronectin binding domain of a fibronectin binding protein, wherein said peptide does not bind to fibronectin.

16. The composition of claim 15, wherein said isolated peptide is sufficiently similar to a portion of the wild-type sequence of said fibronectin binding domain of said fibronectin binding protein to allow the generation of an antibody that binds both to said isolated peptide and said fibronectin binding domain.

17. The composition of claim 16, wherein said isolated peptide comprises at least about 6 contiguous amino acids from said wild type sequence of said fibronectin binding domain.

18. The composition of claim 15, wherein said isolated peptide comprises at least a first mutation as compared to the corresponding amino acid sequence from a wild type fibronectin binding domain.

19. The composition of claim 18, wherein said isolated peptide has been engineered to comprise said mutation.

20. The composition of claim 15, wherein said isolated peptide comprises a contiguous amino acid sequence of at least about 8 amino acids from SEQ ID NO:60 or SEQ ID NO:61.

21. The composition of claim 20, wherein said isolated peptide comprises the contiguous amino acid sequence of SEQ ID NO:60 or SEQ ID NO:61.

22. The composition of claim 15, wherein said isolated peptide is operatively linked to a selected carrier molecule.

23. The composition of claim 15, wherein said composition further comprises an adjuvant.

24. The composition of claim 15, wherein said composition is dispersed in a pharmaceutically acceptable excipient.

25. A composition comprising a fusion protein comprising at least a first peptide of a fibronectin binding domain of fibronectin binding protein operatively linked to a selected amino acid sequence, wherein said first peptide does not specifically bind to fibronectin.

26. The composition of claim 25, wherein said first peptide is operatively linked to a selected carrier amino acid sequence.

27. The composition of claim 26, wherein said first peptide is operatively linked to keyhole limpet hemocyanin.

28. A composition comprising an isolated nucleic acid segment that encodes a peptide of a fibronectin binding domain of a fibronectin binding protein, wherein said peptide does not specifically bind to fibronectin.

29. A pharmaceutical composition comprising, in a pharmaceutically acceptable excipient, an effective amount of:

- 5
- a) an antibody that binds to a fibronectin binding domain of a fibronectin binding protein and inhibits binding of said fibronectin binding protein to fibronectin;
- b) an isolated peptide of a fibronectin binding domain of a fibronectin binding protein, wherein said peptide does not specifically bind to fibronectin; or
- 10 c) an isolated nucleic acid segment that encodes a peptide of a fibronectin binding domain of a fibronectin binding protein, wherein said peptide does not specifically bind to fibronectin.

30. The pharmaceutical composition of claim 29, comprising an antibody that binds to a fibronectin binding domain of a fibronectin binding protein and inhibits binding of said fibronectin binding protein to fibronectin.

31. The pharmaceutical composition of claim 29, comprising an isolated peptide of a fibronectin binding domain of a fibronectin binding protein, wherein said peptide does not specifically bind to fibronectin.

32. A method of identifying a peptide of a fibronectin binding domain of a fibronectin binding protein that does bind to fibronectin, comprising contacting a candidate peptide with fibronectin under effective binding conditions, and identifying a positive candidate peptide that does not bind to fibronectin.

Sub A

33. A method of generating an antibody that binds to a fibronectin binding domain of a fibronectin binding protein and inhibits binding of said fibronectin binding protein to fibronectin, comprising administering to an animal a pharmaceutical composition comprising an immunologically effective amount of an isolated peptide of a fibronectin binding domain of a fibronectin binding protein, wherein said peptide does not specifically bind to fibronectin.

34. The method of claim 33, wherein said pharmaceutical composition is prepared by:

- a) contacting a candidate peptide with fibronectin under effective binding conditions, and identifying a positive candidate peptide that does not bind to fibronectin; and
- b) dispersing said positive candidate peptide in a pharmaceutically acceptable diluent.

35. The method of claim 34, wherein a plurality of candidate peptides are contacted with fibronectin under effective binding conditions, and a positive candidate peptide that does not bind to fibronectin is identified.

36. The method of claim 33, wherein said pharmaceutical composition comprises an immunologically effective amount of a peptide having the amino acid sequence of SEQ ID NO:60 or SEQ ID NO:61.

37. The method of claim 33, wherein said animal has, is suspected of having, or is at risk of developing a microbial infection.

38. A method for detecting a fibronectin binding protein in a sample, comprising contacting a sample suspected of containing a fibronectin binding protein with an antibody that binds to a fibronectin binding domain of a fibronectin binding protein and inhibits binding of said fibronectin binding protein to fibronectin, under conditions effective to allow the formation of immune complexes, and detecting the immune complexes so formed.

39. The method of claim 38, wherein said fibronectin binding protein is expressed by a microorganism, and said sample is suspected of containing said microorganism.

40. The method of claim 39, wherein said fibronectin binding protein is expressed by a streptococcus or a staphylococcus.

41. The method of claim 40, wherein said fibronectin binding protein is expressed by *Staphylococcus aureus*.

42. A kit comprising, in suitable container means:

- a) an antibody that binds to a fibronectin binding domain of a fibronectin binding protein and inhibits binding of said fibronectin binding protein to fibronectin;
- b) an isolated peptide of a fibronectin binding domain of a fibronectin binding protein, wherein said peptide does not specifically bind to fibronectin; or
- c) an isolated nucleic acid segment that encodes a peptide of a fibronectin binding domain of a fibronectin binding protein, wherein said peptide does not specifically bind to fibronectin.

43. The kit of claim 42, comprising, in suitable container means, a first antibody that binds to a fibronectin binding domain of a fibronectin binding protein and inhibits binding of said fibronectin binding protein to fibronectin.

44. The kit of claim 43, further comprising an immunodetection reagent.

45. The kit of claim 44, wherein said immunodetection reagent is a detectable label that is linked to said first antibody.

46. The kit of claim 43, further comprising a second antibody that binds to said first antibody.

47. The kit of claim 42, wherein a therapeutically effective amount of said antibody, said isolated peptide or said isolated nucleic acid segment is comprised in a pharmaceutically acceptable formulation.

48. The kit of claim 47, wherein said antibody inhibits the binding of streptococci or staphylococci to fibronectin.

49. The kit of claim 47, wherein said pharmaceutically-acceptable formulation is suitable for topical, parenteral or oral administration.



50. The kit of claim 49, wherein said pharmaceutically-acceptable formulation is suitable for topical administration.

5 51. A method of preventing or treating a microbial infection in an animal, comprising administering to said animal a therapeutically effective amount of a pharmaceutical composition comprising:

- 10 a) an antibody that binds to a fibronectin binding domain of a fibronectin binding protein and inhibits binding of said fibronectin binding protein to fibronectin;
- b) an isolated peptide of a fibronectin binding domain of a fibronectin binding protein, wherein said peptide does not specifically bind to fibronectin; or
- 15 c) an isolated nucleic acid segment that encodes a peptide of a fibronectin binding domain of a fibronectin binding protein, wherein said peptide does not specifically bind to fibronectin.

20 52. The method of claim 51, wherein said method prevents or treats streptococcal or staphylococcal infection in said animal.

25 53. The method of claim 51, wherein said animal is a human subject.

add  
cl ~~1~~